DCAMS Brings Fresh Look to 21st Century Damage Control

By Fred J. Klinkenberger Jr., Naval Safety Center

DCAMS—Damage Control Action Management Software—evolved from research into past casualties and examining varied ways of displaying and passing on shipboard casualty information. It is based on information-display lessons learned from World War II damage reports and those from USS *Stark* (FFG 31), USS *Samuel B. Roberts* (FFG 58) and, most recently, USS *Cole* (DDG 67). With simple displays using a ship's side profile and deck plans, DCAMS provides superior tactical information so a shipboard casualty can be efficiently contained. Information then is graphically plotted with icons representing casualties, personnel and equipment locations.

DCAMS initially was designed to show the location of, and to manage, damage control equipment, but has expanded to manage information and enable shipboard DC personnel to more proactively control DC casualties. This shifts damage control from a defensive posture where everyone is trying to explain what's going on, to an offensive posture where everyone sees the same information plotted once and broadcast everywhere. Confusion is reduced and rapid response is more focused. DCAMS shows what the casualty is, the casualty's location, and the location of responding personnel. Such critical information gives a universal tactical picture for all—even at the battle-group command and higher levels—and helps those responding to the casualty, including off-ship assistance.

Developed for 16 ship classes including the newest such as the LPD 17 and DDG 51A flight IIA, DCAMS is an electronic, visual-representation tool that indicates and tracks damage and DC equipment status. It can even be a tool during new construction or shipyard overhaul. Damage-control readiness dictates knowing the ship backward and forward and from top to bottom.

Imagine being a pre-commissioning crew member and your ship is in the chaotic state of being built. You can use a computer to track and map compartments and all portable and fixed DC/FF/PP/CBR equipment thoughout the ship. You could go through the ship and pinpoint the location of certain equipment stowage brackets or where they are to be installed. Each passing day offers a better mental picture of the ship's layout and prepares you to fight a real casualty. Familiarization helps with training and ultimately quickens response time. Future DCAMS will bring wearable computers and real-time personnel locators, including live video from the casualty scene. Funding restraints have slowed the installation of laptops and IT21/ISNS local area network (LAN) drops into each DCRS and DC Central, but ships can use DCAMS software in a stand-alone mode. They also can put it onto the ships LAN since the software is certified.

Two key aspects of DCAMs are its new computer symbology that fully complies with NSTM 079 Vol. II, and portability (using laptop computers), unlike other electronic "big console" stationary systems. DCAMS—once fully integrated throughout the fleet—will reduce repair station and central control manning requirements and will significantly reduce paper documentation.

Most noticeable to veteran shipboard damage control professionals will be DCAMS' new symbology, based on graphic images and circles, not triangles. The symbology comes from years of studying symbols used in commercial aircraft safety pamphlets and in public places like Disneyland. Since DCAMS includes damage control training aids, symbology on aids had to be standardized. Today too many non-standard aids permeate non-DCAMS DC training.

DCAMS combines colors with symbols for DC team training. All ruptures are indicated by the same graphic (a ruptured pipe), and the pipe's color indicates what flows through it: red is a fire main, purple a JP-5 line, etc. Symbol colors match actual shipboard piping system hand wheels colors. Graphics also have letters identifying the piping to complement the hand wheel colors. The software's color-coded deck drawings indicate areas like watertight and fire zone bulkheads, a fire suppression coverage area, and more. DCAMS lets the DCA view all decks and offers "zoom" capability to close in on specific compartments.

DCAMS is password-protected at several levels. Originally in MS-DOS, it now operates in Windows NT 4.0 and Windows 2000 and will be part of the Navy's near-future Total Ship Training System (TSTS). It also offers a checklist of things-to-do during a casualty and for post-casualty cleanup.

More on DCAMS will appear in the Jan.-March 2004 Fathom. *Direct questions to Naval Sea Systems Command Code 05P4 (Damage Control and Fire Protection Engineering), Mr. Hank Kuzma at (202) 781-3634 (DSN prefix is 326) or e-mail kuzmahj@navsea.navy.mil.*